

TEST REPORT

FCC ID: UCC-C22221000

Product: C2s Dual-band 2x2 802.11ac WiFi AP/Bridge

Model No.: C2-2221-000

Additional Model No.: N/A

Trade Mark: Altai

Report No.: TCT160413E020

Issued Date: Jul. 12, 2016

Issued for:

Altai Technologies Limited

**Unit 209, 2/F, Lakeside 2, 10 Science Park West Avenue, HK Science Park,
Shatin, Hong Kong**

Issued By:

Shenzhen Tongce Testing Lab.

1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China

TEL: +86-755-27673339

FAX: +86-755-27673332

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1. Test Certification

Product:	C2s Dual-band 2x2 802.11ac WiFi AP/Bridge
Model No.:	C2-2221-000
Additional Model No.:	N/A
Applicant:	Altai Technologies Limited
Address:	Unit 209, 2/F, Lakeside 2, 10 Science Park West Avenue, HK Science Park, Shatin, Hong Kong
Manufacturer:	Altai Technologies Limited
Address:	Unit 209, 2/F, Lakeside 2, 10 Science Park West Avenue, HK Science Park, Shatin, Hong Kong
Date of Test:	Apr. 13 –Jul. 12, 2016
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407:2014 789033 D02 General UNII Test Procedures New Rules v01r02

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:

SKY Luo

SKY Luo

Date:

Jul. 12, 2016

Reviewed By:

Joe Zhou

Joe Zhou

Date:

Jul. 12, 2016

Approved By:

Tomsin

Tomsin

Date:

Jul. 12, 2016

2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Maximum Conducted Output Power	§15.407(a) §2.1046	PASS
6dB Emission Bandwidth	§15.407(a) §2.1049	PASS
26dB Emission Bandwidth & 99% Occupied Bandwidth	§15.407(a) §2.1049	PASS
Power Spectral Density	§15.407(a)	PASS
Restricted Bands around fundamental frequency	§15.407(a)	PASS
Radiated Emission	§15.407(a) §2.1053	PASS
Frequency Stability	§15.407(g) §2.1055	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

3. EUT Description

Product Name:	C2s Dual-band 2x2 802.11ac WiFi AP/Bridge
Model :	C2-2221-000
Additional Model:	N/A
Trade Mark:	Altai
Operation Frequency:	Band IV: 5745MHz~5825MHz
Channel Bandwidth:	802.11a :20MHz 802.11n :20MHz, 40MHz 802.11ac : 20MHz, 40MHz, 80MHz.
Modulation Technology:	Orthogonal Frequency Division Multiplexing(OFDM)
Modulation Type	256QAM, 64QAM, 16QAM, BPSK, QPSK
Antenna Type:	internal antenna
Antenna Gain:	Band IV: 5745MHz~5825MHz: 9dBi
Power Supply:	DC 24V from adapter Adapter information: Model:SEW2401000P Input:100~240V, 1A Output:24V,1000mA

Band IV (5725 - 5850 MHz) Power level setup in software

Mode	Channel	Frequency	Soft set
11a	CH149	5745	13
11a	CH157	5785	19
11a	CH161	5825	13
11n (HT20)	CH149	5745	13
11n (HT20)	CH157	5785	19
11n (HT20)	CH161	5825	13
11n (HT40)	CH151	5755	13
11n (HT40)	CH159	5795	13
11ac (HT20)	CH149	5745	13
11ac (HT20)	CH157	5785	19
11ac (HT20)	CH161	5825	13
11ac (HT40)	CH151	5755	13
11ac (HT40)	CH159	5795	13
11ac (HT80)	CH155	5775	13

Operation Frequency each of channel

20MHz		40MHz		80MHz	
Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

For 802.11a/n(HT20)/ac(HT20)

Band IV (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)
149	Low	5745
157	Mid	5785
161	High	5825

For 802.11n (HT40)/ac(HT40)

Band IV (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)
151	Low	5755
159	High	5795

For 802.11ac(HT80)

Band IV (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)
155	Low	5775

4. Genera Information

4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 100%)
<p>The sample was placed (0.8m/1.5m for below/above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.</p>	

<p>We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:</p>	
<p>Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.</p>	
Mode	Data rate
802.11a	6Mbps
802.11n(HT20)	6.5 Mbps
802.11n(HT40)	13.5 Mbps
802.11ac(HT20)	6.5 Mbps
802.11ac(HT40)	13.5Mbps
802.11ac(HT80)	V0
Final Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation

4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Notebook	G485	LB00402300	N/A	LENOVO

Note:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*
- 3. For conducted measurements (Output Power, Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.*

5. Facilities and Accreditations

5.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 572331
Shenzhen Tongce Testing Lab
The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.
- IC - Registration No.: 10668A-1
The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing
- CNAS - Registration No.: CNAS L6165
Shenzhen TCT Testing Technology Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6165.

5.2. Location

Shenzhen Tongce Testing Lab

Address: 1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China

Tel: 86-755-36638142

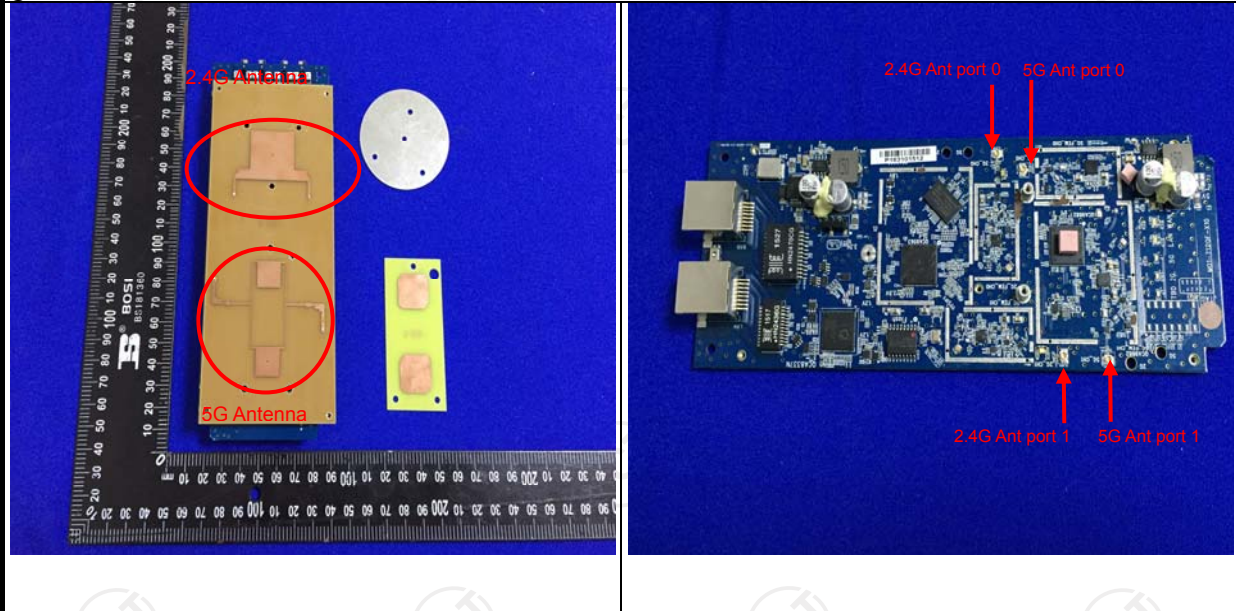
5.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^\circ\text{C}$
7	Humidity	$\pm 1.0\%$

6. Test Results and Measurement Data

6.1. Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
<p>15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p>	
E.U.T Antenna:	
<p>The EUT has two Internal antennas which permanently attached, and the best case gain of the antennas are 6dBi for 2.4G, 9dBi for 5G.</p>	
	

6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10:2013														
Frequency Range:	150 kHz to 30 MHz														
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test Setup:	<p><i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>														
Test Mode:	TX Mode														
Test Procedure:	<ol style="list-style-type: none"> The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. 														
Test Result:	PASS														
Remark	The worst mode 11a CH157 TX reported only.														

6.2.2. Test Instruments

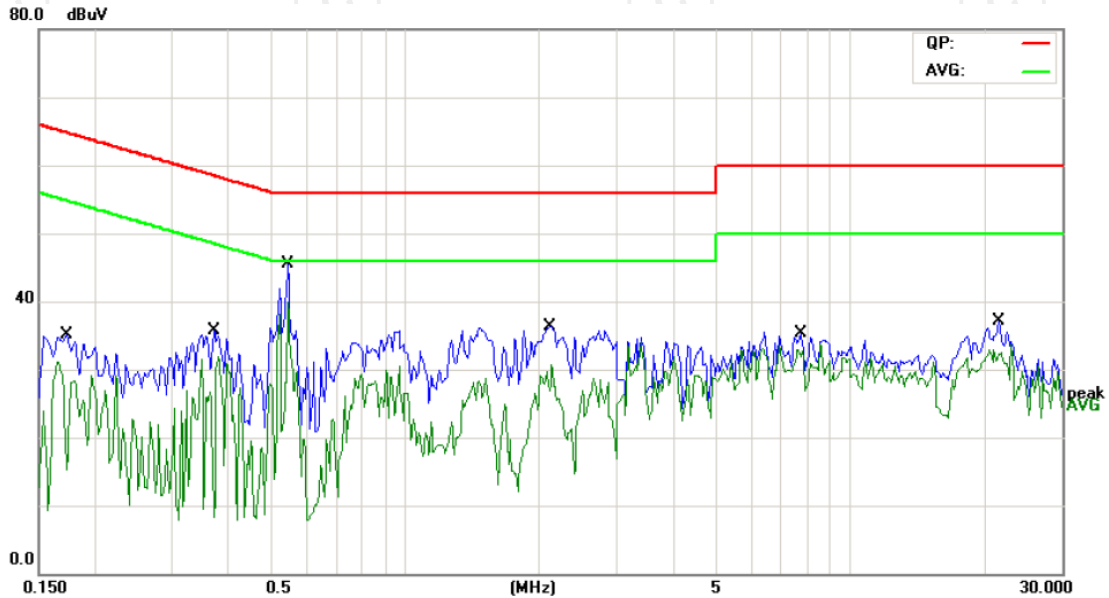
Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCS30	100139	Nov. 16, 2015
LISN	Schwarzbeck	NSLK 8126	8126453	Nov. 29, 2015
Coax cable	TCT	CE-05	N/A	Nov. 15, 2015
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.2.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



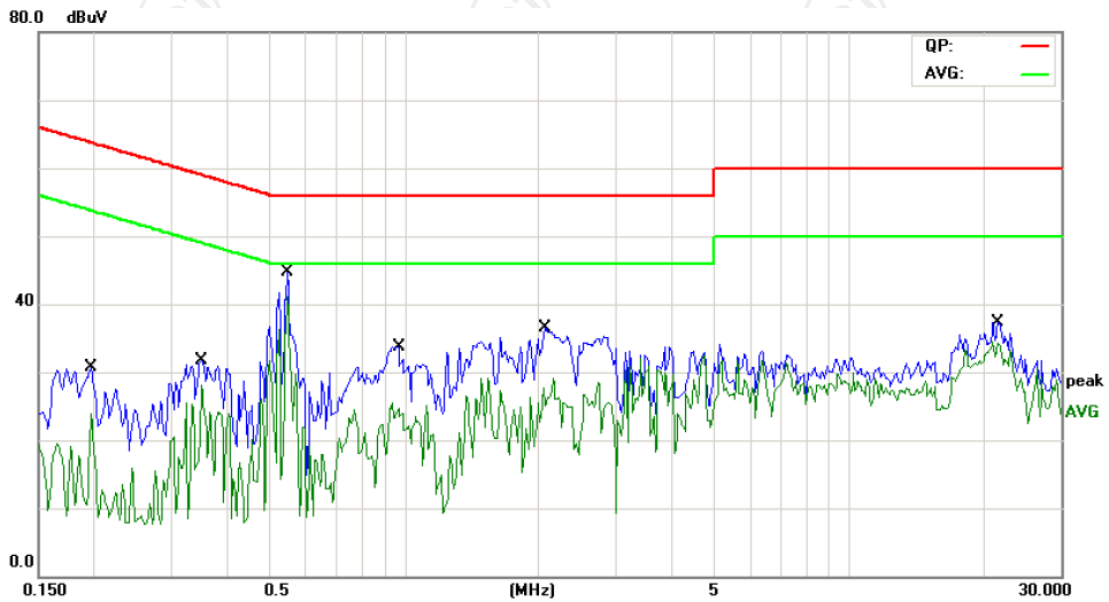
Site Chamber #2 Phase: **L1** Temperature: 23 (C)
Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

No.	Mk.	Freq. MHz	Reading Level dBµV	Correct Factor dB	Measure- ment dBµV	Limit dBµV	Over dB	Detector	Comment
1		0.1734	21.09	11.48	32.57	64.79	-32.22	QP	
2		0.1734	12.38	11.48	23.86	54.79	-30.93	AVG	
3		0.3727	21.98	11.36	33.34	58.44	-25.10	QP	
4		0.3727	14.19	11.36	25.55	48.44	-22.89	AVG	
5		0.5445	32.98	11.29	44.27	56.00	-11.73	QP	
6	*	0.5445	29.63	11.29	40.92	46.00	-5.08	AVG	
7		2.1148	20.85	11.64	32.49	56.00	-23.51	QP	
8		2.1148	10.83	11.64	22.47	46.00	-23.53	AVG	
9		7.7578	19.53	11.02	30.55	60.00	-29.45	QP	
10		7.7578	11.93	11.02	22.95	50.00	-27.05	AVG	
11		21.6641	24.56	10.61	35.17	60.00	-24.83	QP	
12		21.6641	20.21	10.61	30.82	50.00	-19.18	AVG	

Note:

- Freq. = Emission frequency in MHz
- Reading level (dBµV) = Receiver reading
- Corr. Factor (dB) = Attenuator factor + Cable loss
- Measurement (dBµV) = Reading level (dBµV) + Corr. Factor (dB)
- Limit (dBµV) = Limit stated in standard
- Margin (dB) = Measurement (dBµV) – Limits (dBµV)
- Q.P. =Quasi-Peak
- AVG =average
- * is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site Chamber #2 Phase: **N** Temperature: 23 (C)
 Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

No.	Mk.	Freq. MHz	Reading Level dBµV	Correct Factor dB	Measure- ment dBµV	Limit dBµV	Over dB	Detector	Comment
1		0.1969	15.30	11.48	26.78	63.74	-36.96	QP	
2		0.1969	6.55	11.48	18.03	53.74	-35.71	AVG	
3		0.3492	17.88	11.40	29.28	58.98	-29.70	QP	
4		0.3492	10.28	11.40	21.68	48.98	-27.30	AVG	
5		0.5445	31.73	11.29	43.02	56.00	-12.98	QP	
6	*	0.5445	28.24	11.29	39.53	46.00	-6.47	AVG	
7		0.9703	20.24	11.18	31.42	56.00	-24.58	QP	
8		0.9703	13.80	11.18	24.98	46.00	-21.02	AVG	
9		2.0719	14.75	11.66	26.41	56.00	-29.59	QP	
10		2.0719	1.37	11.66	13.03	46.00	-32.97	AVG	
11		21.6602	24.04	10.63	34.67	60.00	-25.33	QP	
12		21.6602	19.70	10.63	30.33	50.00	-19.67	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBµV) = Receiver reading

Corr. Factor (dB) = Attenuator factor + Cable loss

Measurement (dBµV) = Reading level (dBµV) + Corr. Factor (dB)

Limit (dBµV) = Limit stated in standard

Margin (dB) = Measurement (dBµV) – Limits (dBµV)

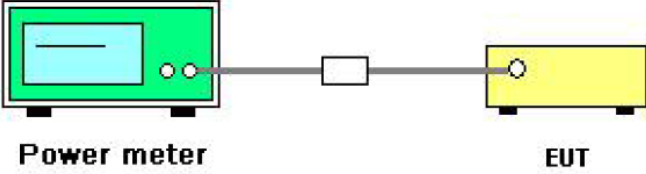
Q.P. =Quasi-Peak

AVG =average

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

6.3. Maximum Conducted Output Power

6.3.1. Test Specification

Test Requirement:	FCC Part15 E Section 15.407(a)& Part 2 J Section 2.1046										
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General U-NII Test Procedures New Rules v01r02 Section E										
Limit:	<table border="1"> <thead> <tr> <th>Frequency Band (MHz)</th> <th>Limit</th> </tr> </thead> <tbody> <tr> <td>5150-5250</td> <td>1W for master device</td> </tr> <tr> <td>5250-5350</td> <td>250 mW or 11 dBm + 10log B, whichever is less.</td> </tr> <tr> <td>5470-5725</td> <td>250 mW or 11 dBm + 10log B, whichever is less.</td> </tr> <tr> <td>5725-5850</td> <td>1 W</td> </tr> </tbody> </table> <p>Note: Where “B” is the 26 dB emissions bandwidth in MHz.</p>	Frequency Band (MHz)	Limit	5150-5250	1W for master device	5250-5350	250 mW or 11 dBm + 10log B, whichever is less.	5470-5725	250 mW or 11 dBm + 10log B, whichever is less.	5725-5850	1 W
Frequency Band (MHz)	Limit										
5150-5250	1W for master device										
5250-5350	250 mW or 11 dBm + 10log B, whichever is less.										
5470-5725	250 mW or 11 dBm + 10log B, whichever is less.										
5725-5850	1 W										
Test Setup:	 <p>The diagram illustrates the test setup. On the left is a green Power meter. A cable connects it to a small white attenuator. Another cable connects the attenuator to a yellow EUT (Equipment Under Test).</p>										
Test Mode:	Transmitting mode with modulation										
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows the Measurement Procedure of KDB789033 D02 General U-NII Test Procedures New Rules v01r02 Section E, 3, a 2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement. 3. Set to the maximum power setting and enable the EUT transmit continuously. 5. Measure the conducted output power and record the result in the test report. 										
Test Result:	PASS										
Remark	Conducted output power= measurement power +10log(1/x) X is duty cycle=1, so 10log(1/1)=0 Conducted output power= measurement power										

6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Meter	Agilent	N1911A	MY45101557	Sep. 12, 2016
Power Sensor	Agilent	N1922A	MY44124432	Sep. 12, 2016
Attenuation	MCL	VAT-10W2 +	1135	N/A
RF cable	TCT	RE-06	N/A	Sep. 12, 2016
Antenna Connector	TCT	RFC-01	N/A	Sep. 12, 2016

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).


6.3.3. Test Data

Configuration Band IV (5725 - 5850 MHz) / Output 0+Output 1						
Mode	Test channel	Maximum Conducted (Average) Output Power (dBm)			FCC Limit (dBm)	Result
		Output 0	Output 1	Total		
11a	CH149	20.98	20.74	23.87	24.00	PASS
11a	CH157	20.56	20.27	23.43	24.00	PASS
11a	CH161	20.01	20.51	23.28	24.00	PASS
11n (HT20)	CH149	20.06	20.51	23.30	24.00	PASS
11n (HT20)	CH157	20.12	20.34	23.24	24.00	PASS
11n (HT20)	CH161	20.41	20.65	23.54	24.00	PASS
11n (HT40)	CH151	20.44	20.54	23.50	24.00	PASS
11n (HT40)	CH159	20.18	20.65	23.43	24.00	PASS
11ac (HT20)	CH149	20.12	20.21	23.18	24.00	PASS
11ac (HT20)	CH157	20.65	20.45	23.56	24.00	PASS
11ac (HT20)	CH161	20.45	20.95	23.72	24.00	PASS
11ac (HT40)	CH151	20.66	20.44	23.56	24.00	PASS
11ac (HT40)	CH159	20.65	20.95	23.81	24.00	PASS
11ac(HT80)	CH155	20.14	20.65	23.41	24.00	PASS

Note: 1. Directional gain = GANT + 10 log(NANT) dBi=9+10log(2)=12dBi
So limit=30-(12-6)= 24dBm/MHz

6.4. 6dB Emission Bandwidth

6.4.1. Test Specification

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)& Part 2 J Section 2.1049
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General U-NII Test Procedures New Rules v01r02 Section C
Limit:	>500kHz
Test Setup:	 <p style="text-align: center;">Spectrum Analyzer EUT</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none"> 1. KDB789033 D02 General UNII Test Procedures New Rules v01 Section C 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. 4. Measure and record the results in the test report.
Test Result:	PASS

6.4.2. Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 12, 2016
RF cable	TCT	RE-06	N/A	Sep. 12, 2016
Antenna Connector	TCT	RFC-01	N/A	Sep. 12, 2016

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.4.3. Test data

Output 0

Band IV (5725 - 5850 MHz)					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	16.38	0.5	PASS
11a	CH157	5785	16.38	0.5	PASS
11a	CH161	5825	16.32	0.5	PASS
11n(HT20)	CH149	5745	17.60	0.5	PASS
11n(HT20)	CH157	5785	17.58	0.5	PASS
11n(HT20)	CH161	5825	17.33	0.5	PASS
11n(HT40)	CH151	5755	35.37	0.5	PASS
11n(HT40)	CH159	5795	35.37	0.5	PASS
11ac(HT20)	CH149	5745	17.58	0.5	PASS
11ac(HT20)	CH157	5785	17.61	0.5	PASS
11ac(HT20)	CH161	5805	17.58	0.5	PASS
11ac(HT40)	CH151	5755	35.57	0.5	PASS
11ac(HT40)	CH159	5795	35.40	0.5	PASS
11ac(HT80)	CH155	5775	75.65	0.5	PASS

Output 1

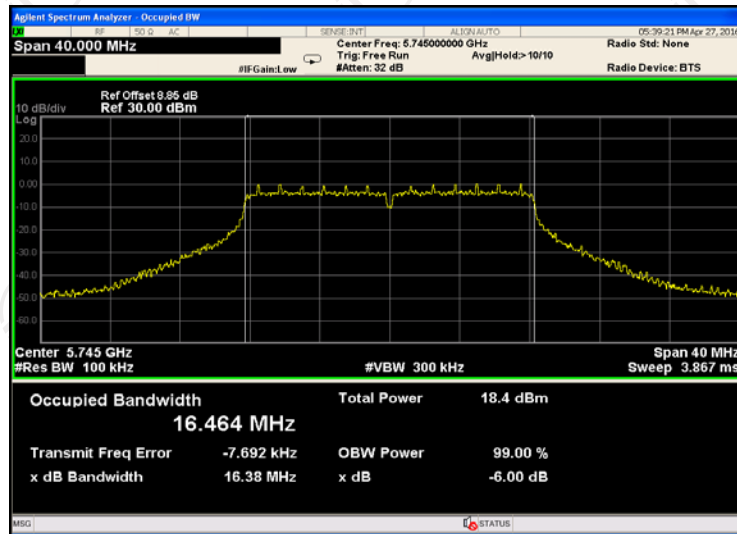
Band IV (5725 - 5850 MHz)					
Mode	Test channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
11a	CH149	5745	16.37	0.5	PASS
11a	CH157	5785	16.42	0.5	PASS
11a	CH161	5825	16.33	0.5	PASS
11n(HT20)	CH149	5745	17.59	0.5	PASS
11n(HT20)	CH157	5785	17.60	0.5	PASS
11n(HT20)	CH161	5825	17.62	0.5	PASS
11n(HT40)	CH151	5755	35.44	0.5	PASS
11n(HT40)	CH159	5795	36.33	0.5	PASS
11ac(HT20)	CH149	5745	17.60	0.5	PASS
11ac(HT20)	CH157	5785	17.60	0.5	PASS
11ac(HT20)	CH161	5805	17.34	0.5	PASS
11ac(HT40)	CH151	5755	35.69	0.5	PASS
11ac(HT40)	CH159	5795	36.33	0.5	PASS
11ac(HT80)	CH155	5775	73.77	0.5	PASS

Test plots as follows:

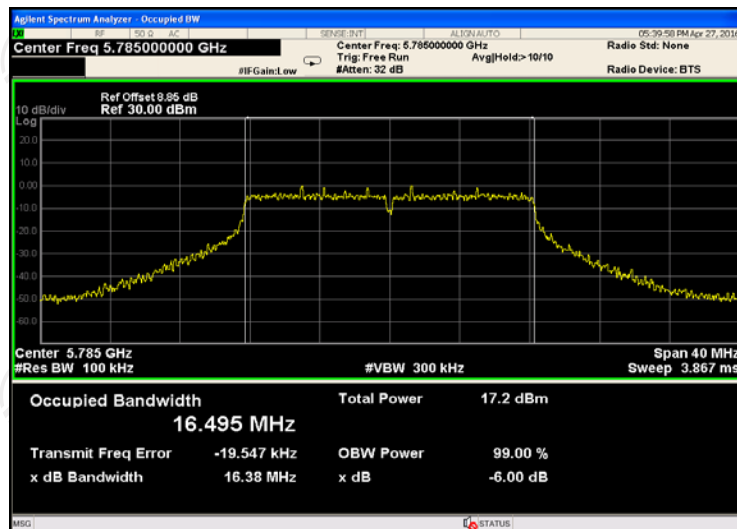
Output 0
Band IV (5725 – 5850 MHz)

11a

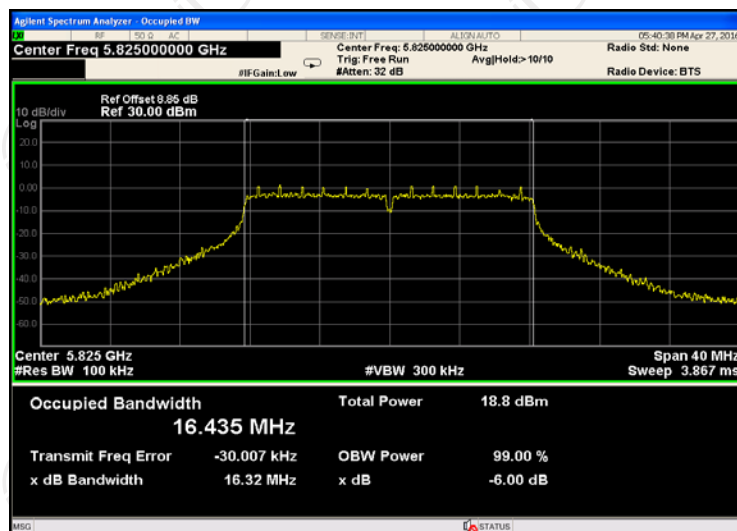
CH149



CH157

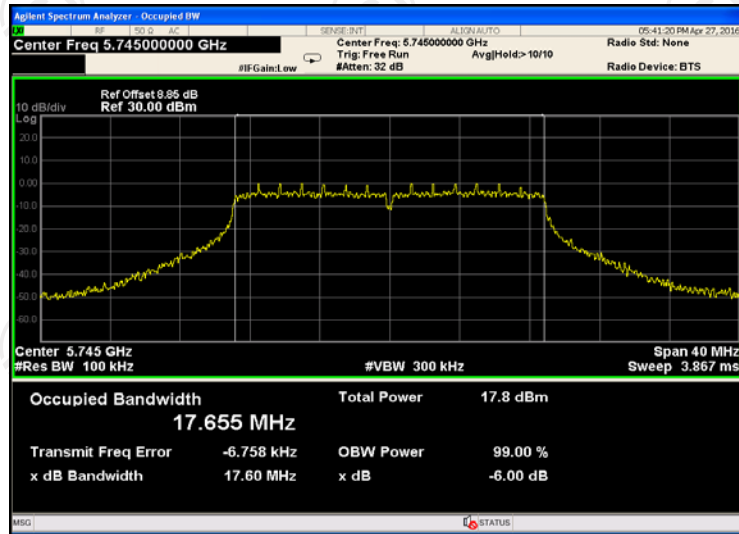


CH161

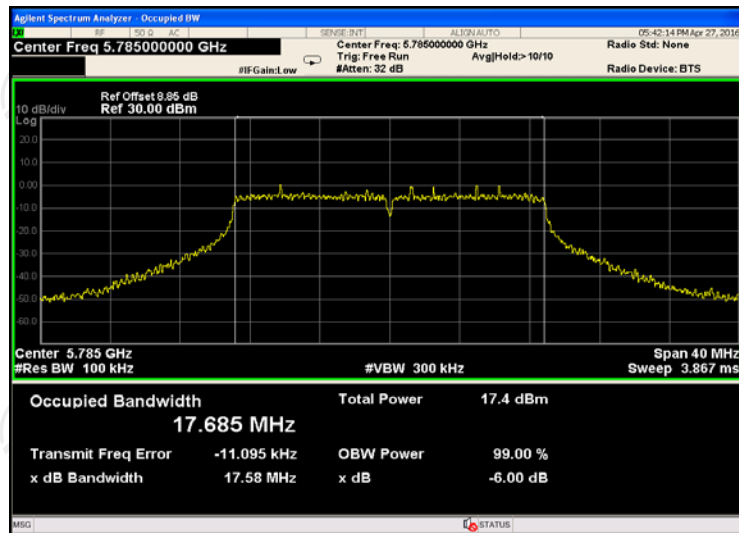


11n(HT20)

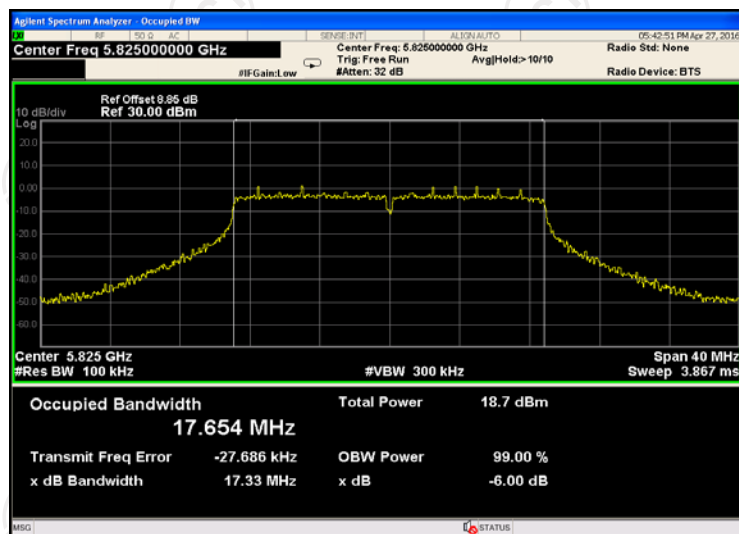
CH149



CH157

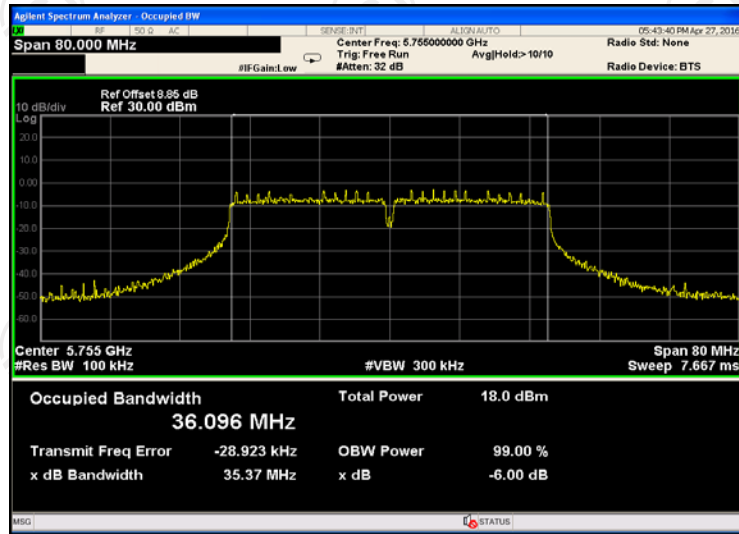


CH161

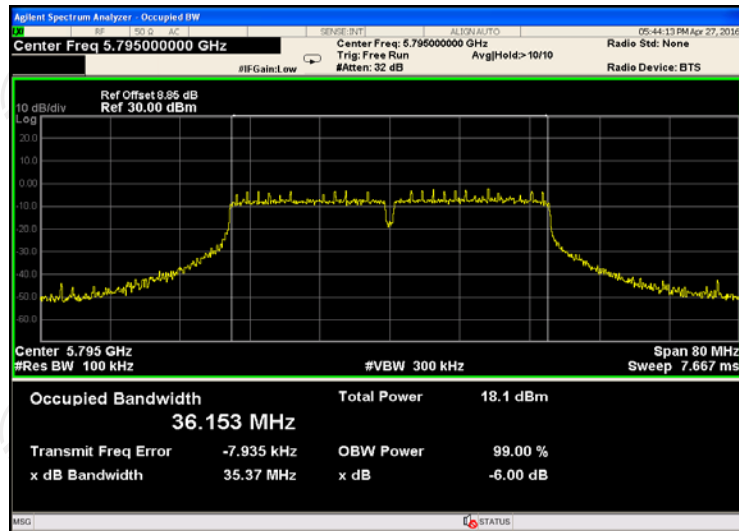


11n(HT40)

CH151

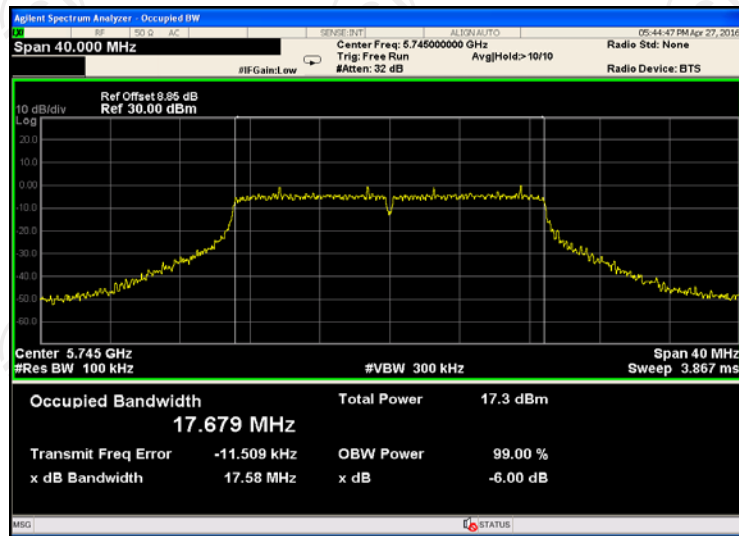


CH159

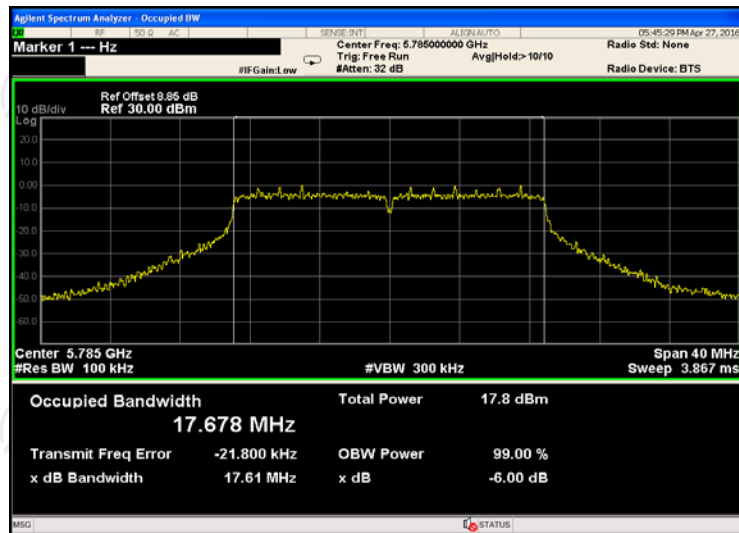


11ac(HT20)

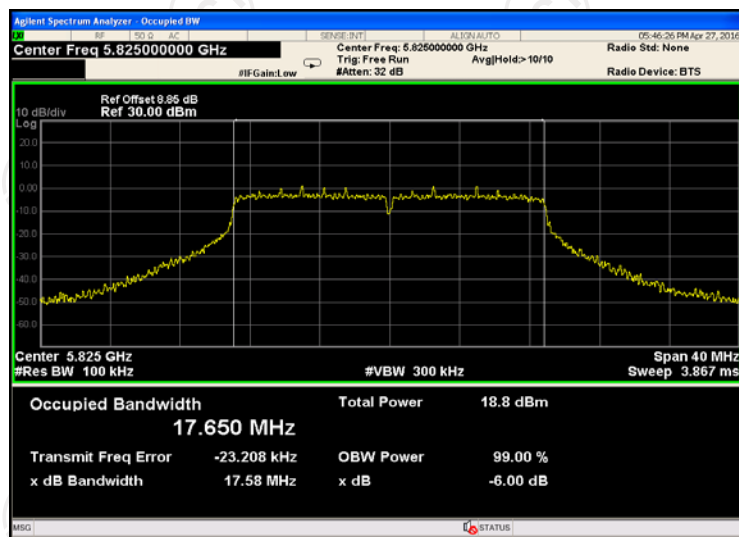
CH149



CH157

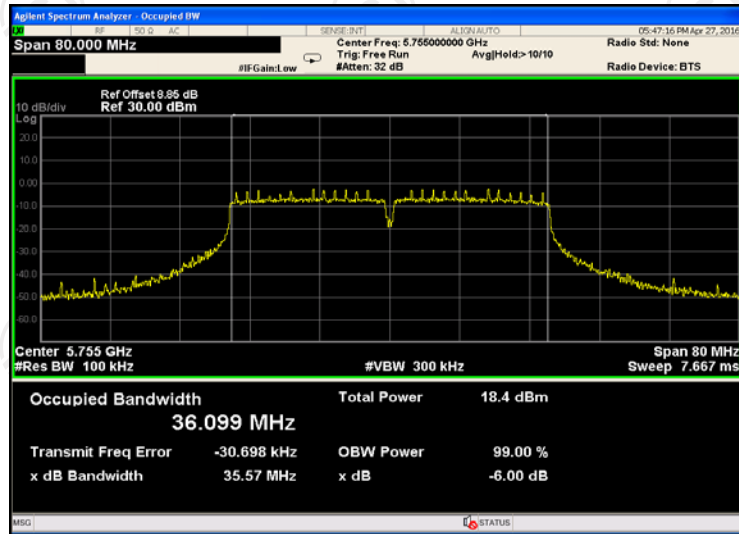


CH161

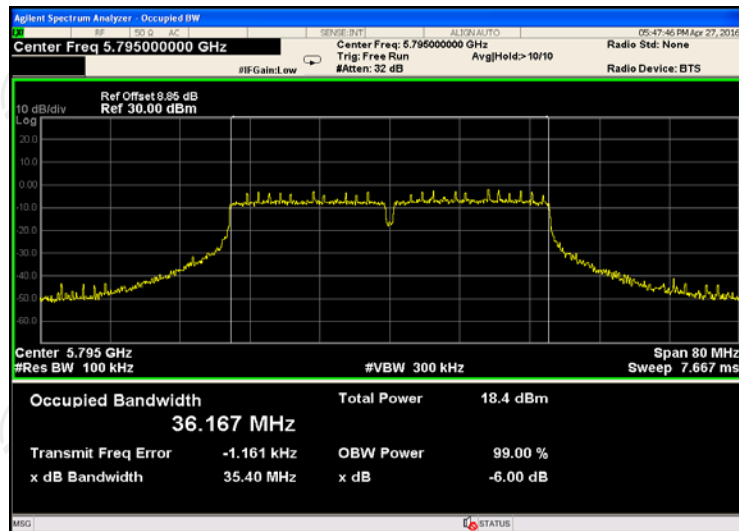


11ac(HT40)

CH151

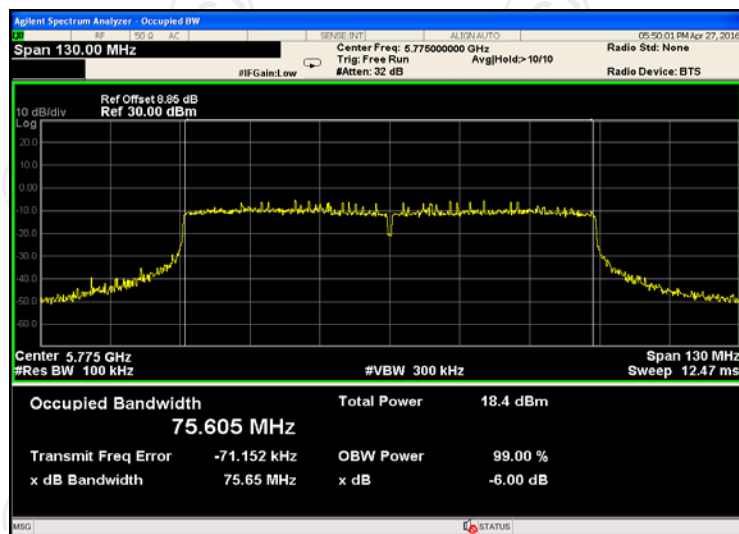


CH159



11ac(HT80)

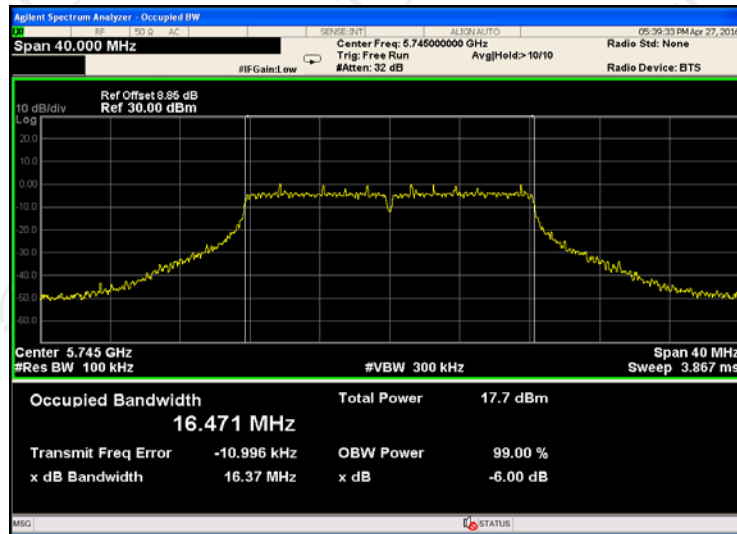
CH155



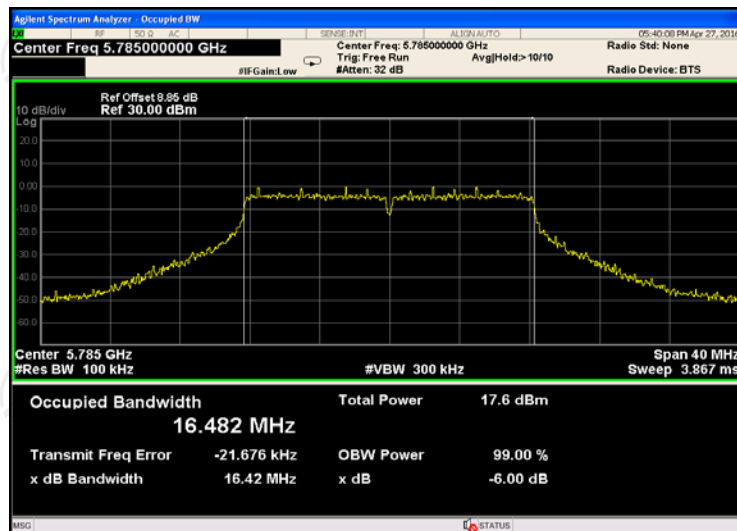
Output 1
Band IV (5725 – 5850 MHz)

11a

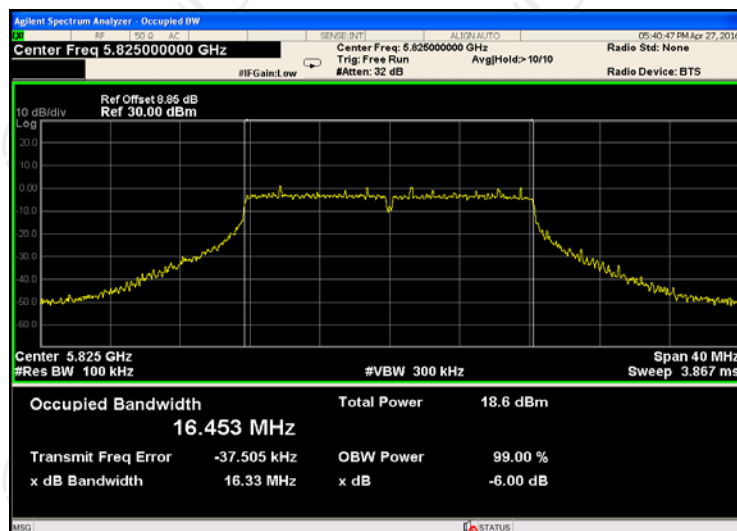
CH149



CH157

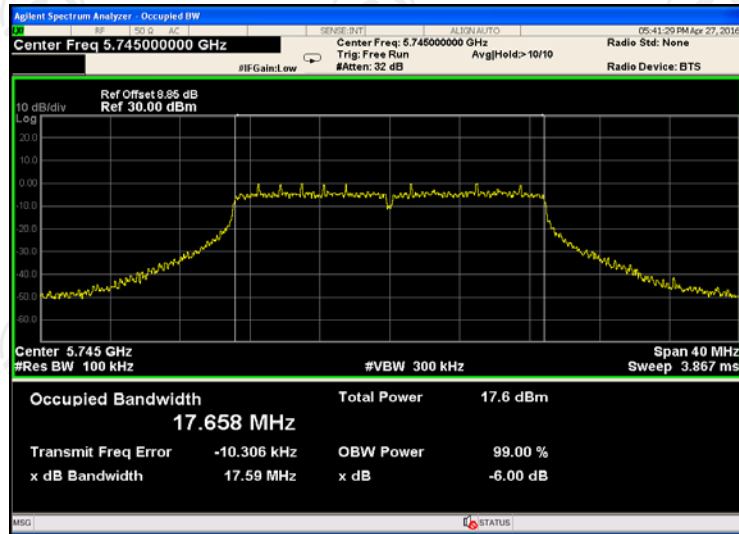


CH161

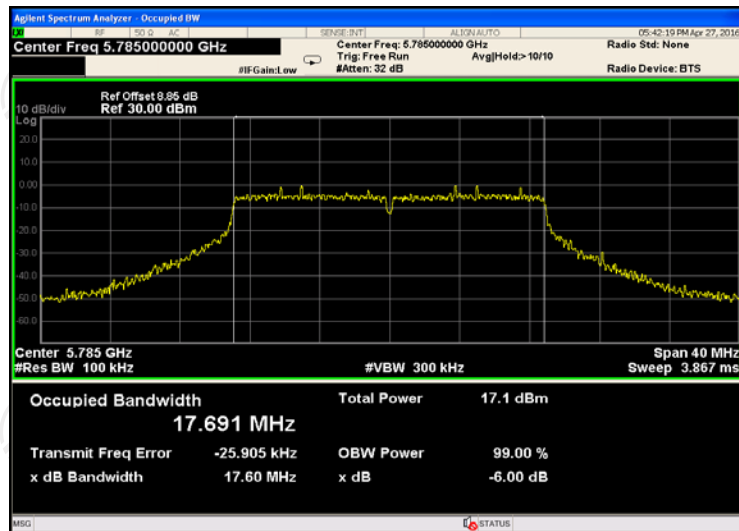


11n(HT20)

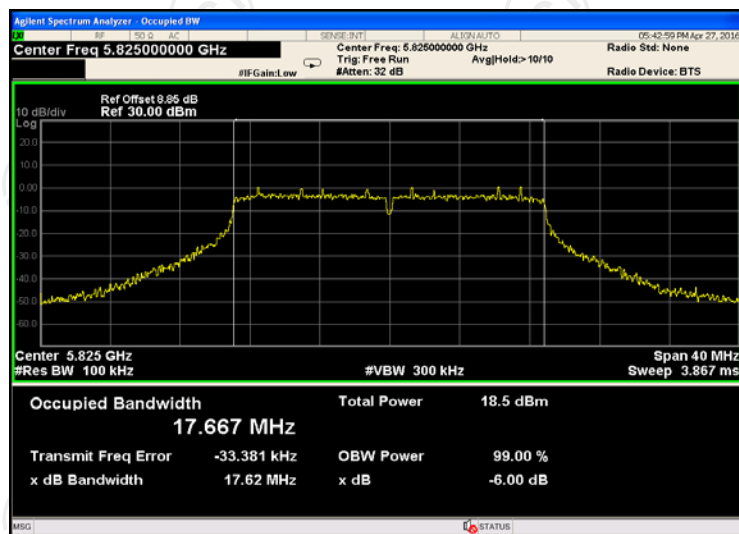
CH149



CH157

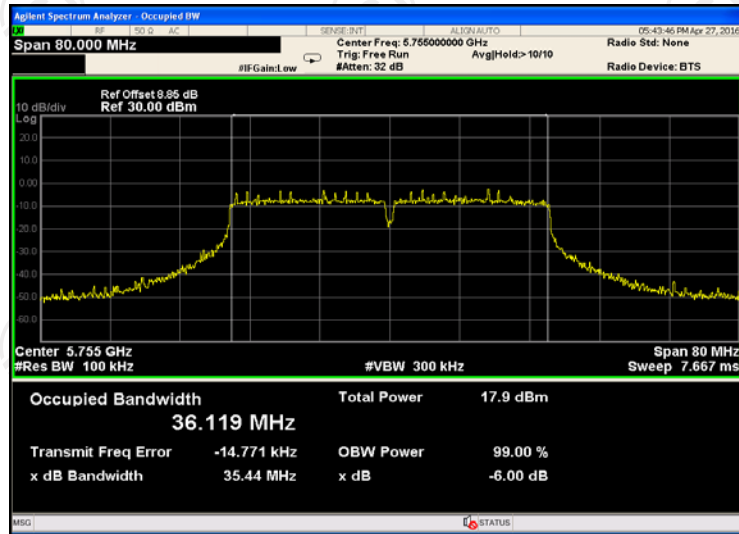


CH161

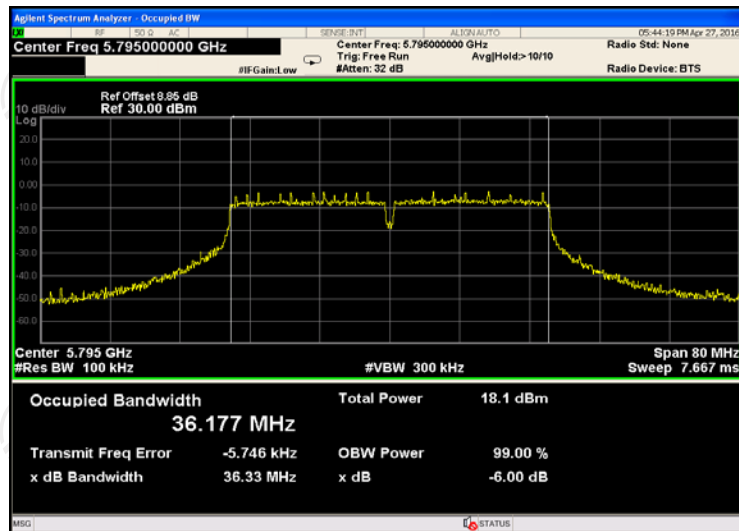


11n(HT40)

CH151

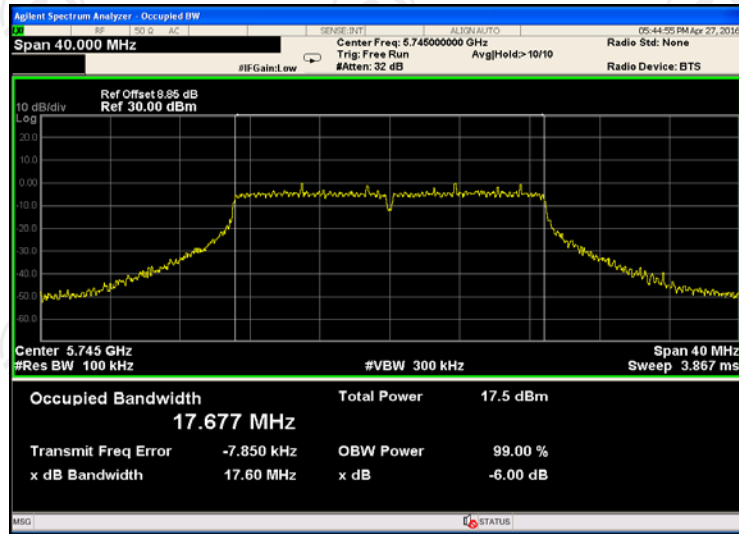


CH159

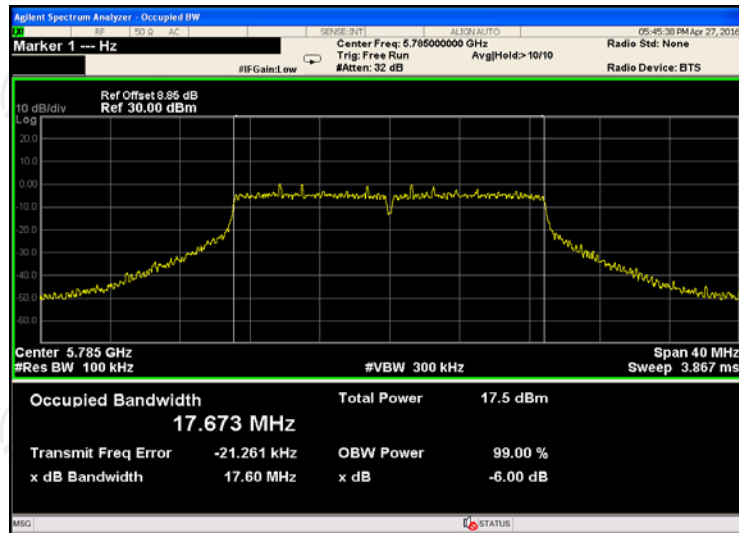


11ac(HT20)

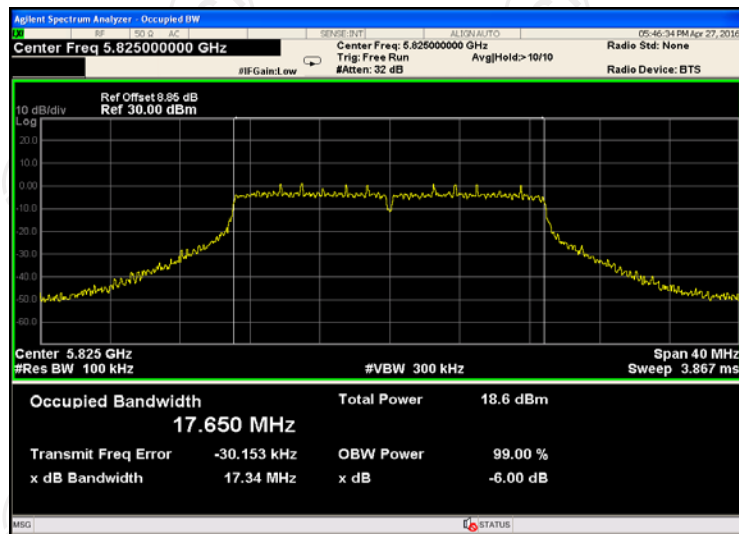
CH149



CH157

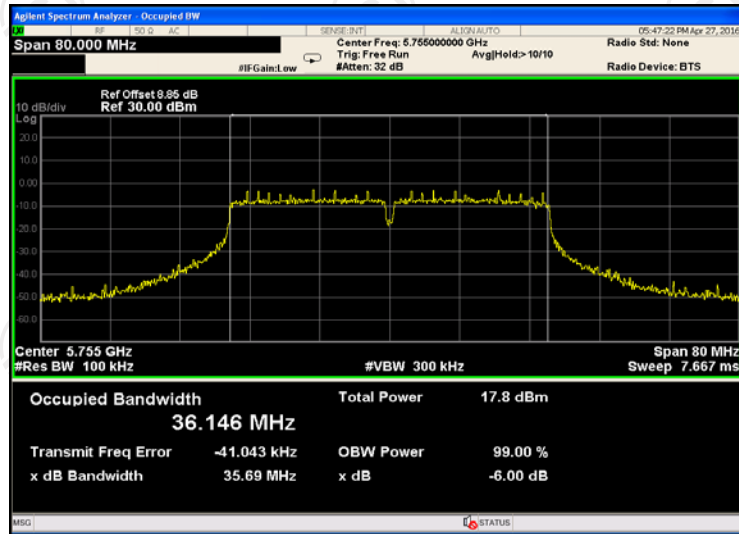


CH161

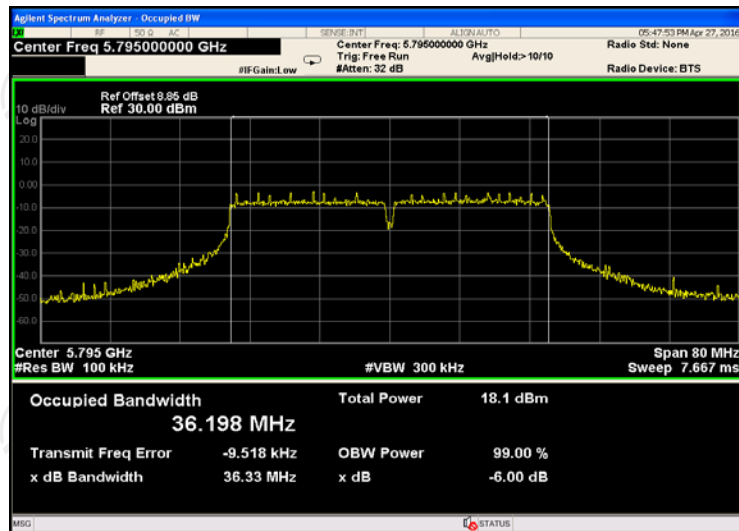


11ac(HT40)

CH151

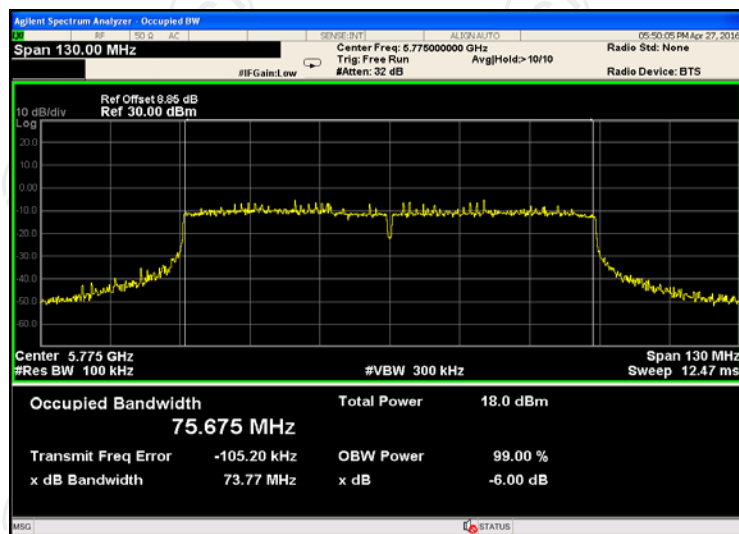


CH159




11ac(HT80)

CH155



6.5. 26dB Bandwidth and 99% Occupied Bandwidth

6.5.1. Test Specification

Test Requirement:	47 CFR Part 15C Section 15.407 (a)& Part 2 J Section 2.1049
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General U-NII Test Procedures New Rules v01r02 Section D
Limit:	No restriction limits
Test Setup:	 <p style="text-align: center;">Spectrum Analyzer EUT</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none"> 1. KDB789033 D02 General UNII Test Procedures New Rules v01r02 Section D 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. 4. Measure and record the results in the test report.
Test Result:	PASS

6.5.2. Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 12, 2016
RF cable	TCT	RE-06	N/A	Sep. 12, 2016
Antenna Connector	TCT	RFC-01	N/A	Sep. 12, 2016

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.5.3. Test data

Output 0

Band IV

Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH149	5745	22.12	16.901
11a	CH157	5785	22.60	16.867
11a	CH161	5825	21.95	16.828
11n(HT20)	CH149	5745	22.95	17.961
11n(HT20)	CH157	5785	22.73	17.967
11n(HT20)	CH161	5825	22.36	17.926
11n(HT40)	CH151	5755	45.70	36.548
11n(HT40)	CH159	5795	44.20	36.597
11ac(HT20)	CH149	5745	22.77	18.035
11ac(HT20)	CH157	5785	23.35	18.063
11ac(HT20)	CH161	5805	22.53	17.938
11ac(HT40)	CH151	5755	45.07	36.522
11ac(HT40)	CH159	5795	44.52	36.423
11ac(HT80)	CH155	5775	85.12	75.980

Output 1

Band IV

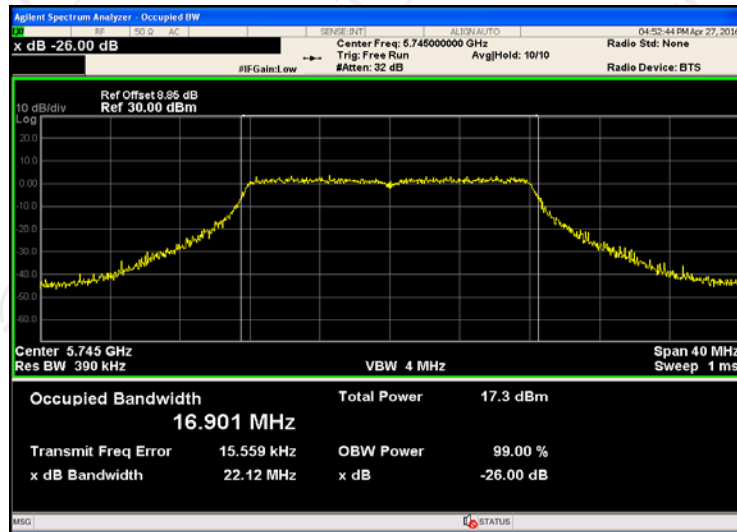
Mode	Test channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH149	5745	22.65	16.890
11a	CH157	5785	21.73	16.893
11a	CH161	5825	21.79	16.855
11n(HT20)	CH149	5745	22.39	17.936
11n(HT20)	CH157	5785	23.06	18.043
11n(HT20)	CH161	5825	23.17	17.940
11n(HT40)	CH151	5755	45.51	36.531
11n(HT40)	CH159	5795	45.61	36.551
11ac(HT20)	CH149	5745	21.85	17.951
11ac(HT20)	CH157	5785	22.24	17.985
11ac(HT20)	CH161	5805	23.03	17.975
11ac(HT40)	CH151	5755	44.23	36.379
11ac(HT40)	CH159	5795	43.63	36.468
11ac(HT80)	CH155	5775	87.55	75.866

Test plots as follows:

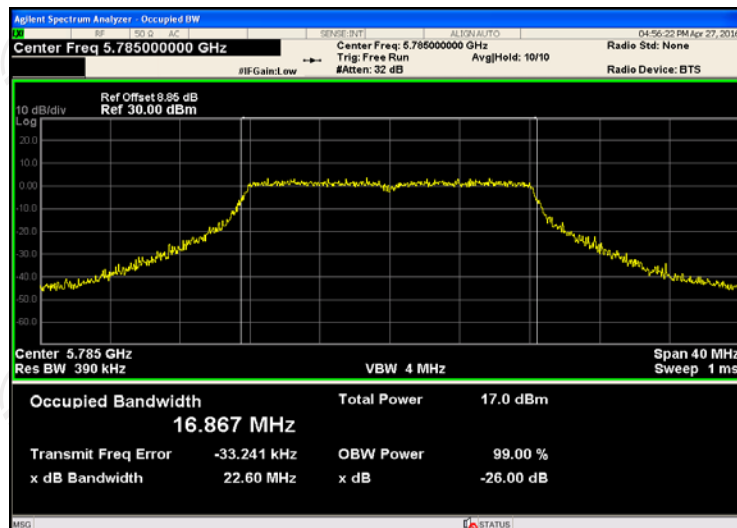
Output 0
Band IV (5725 – 5850 MHz)

11a

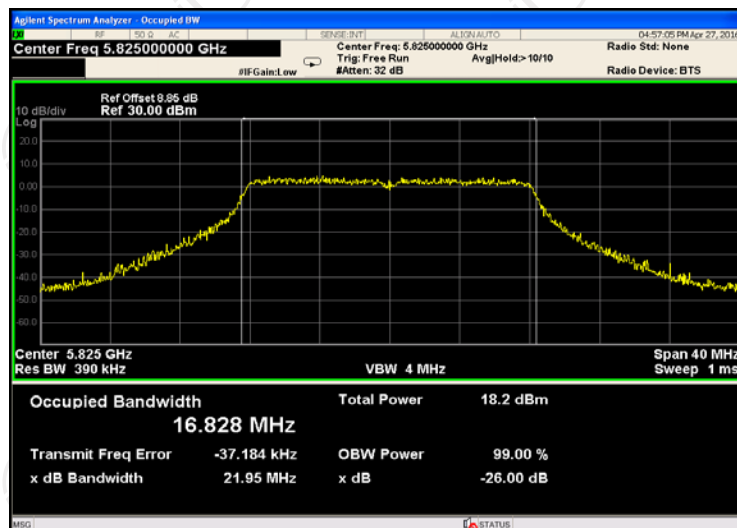
CH149



CH157

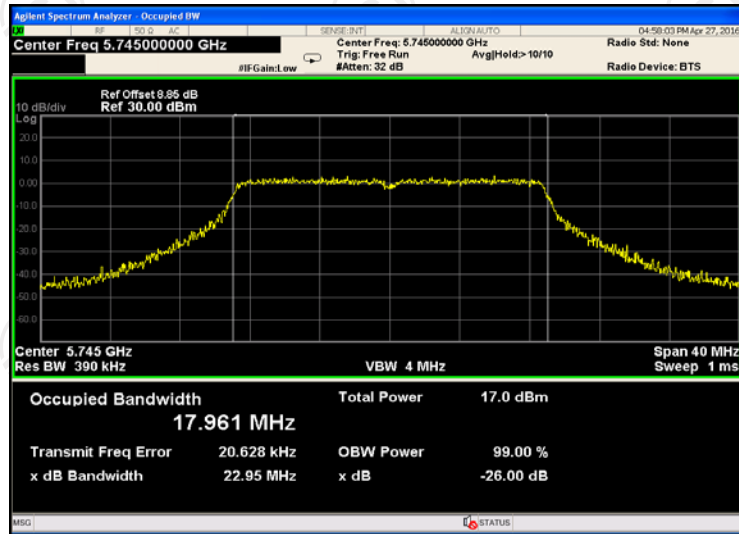


CH161

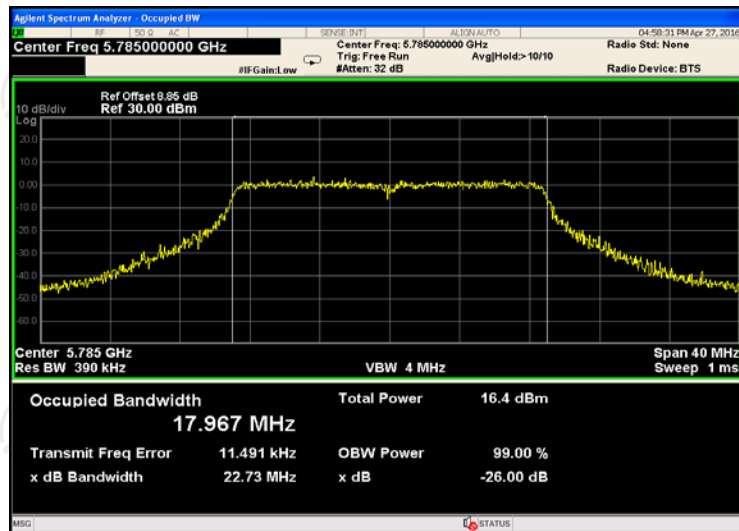


11n(HT20)

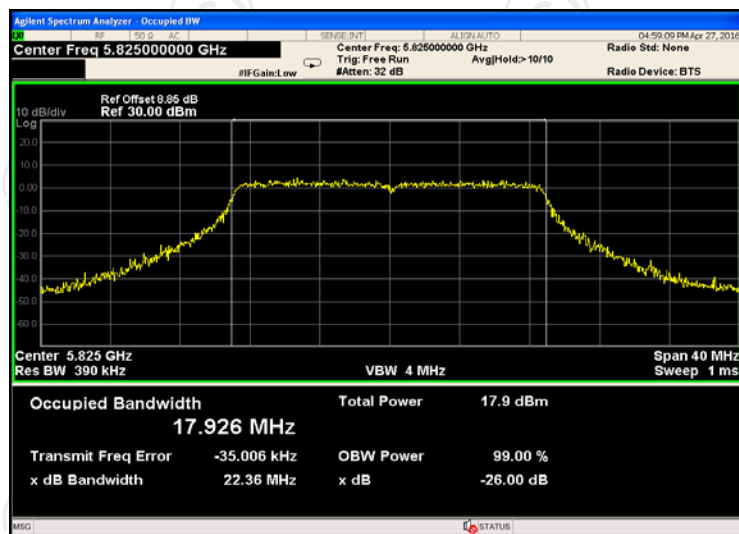
CH149



CH157

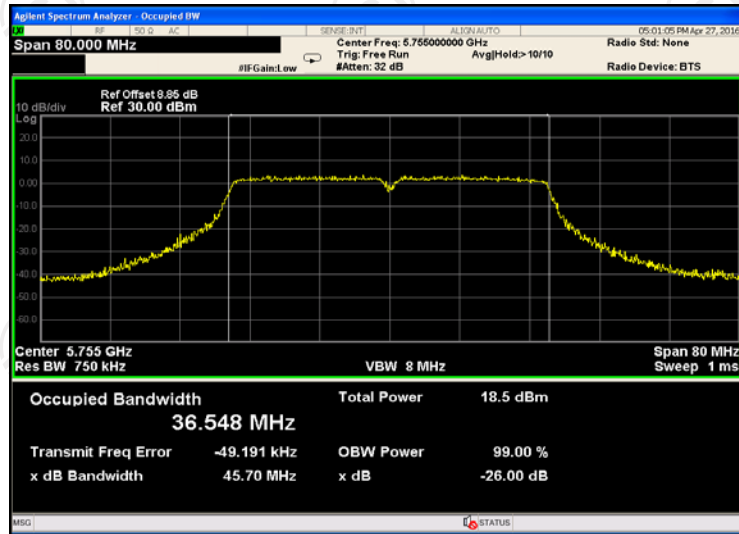


CH161

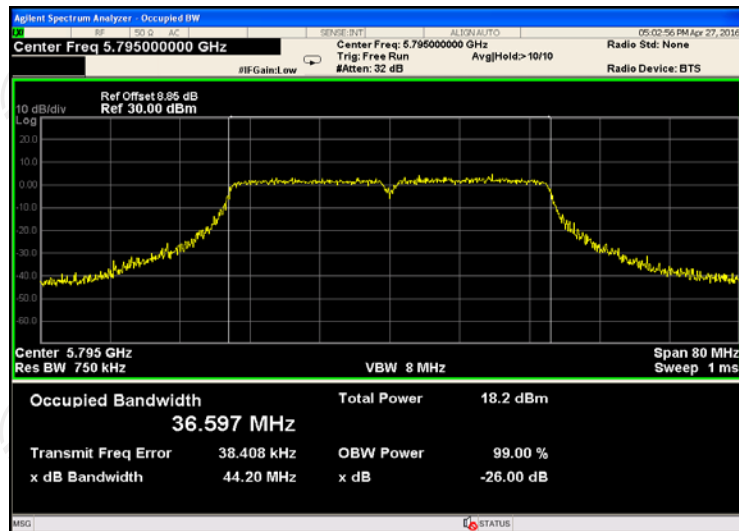


11n(HT40)

CH151

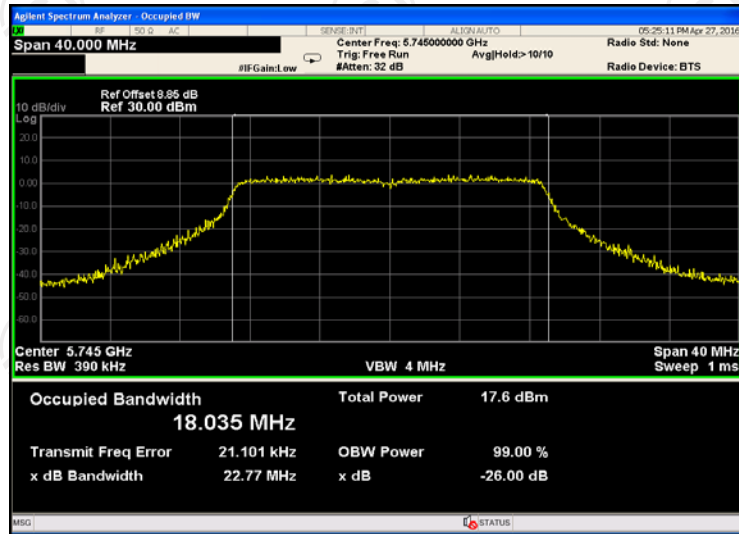


CH159

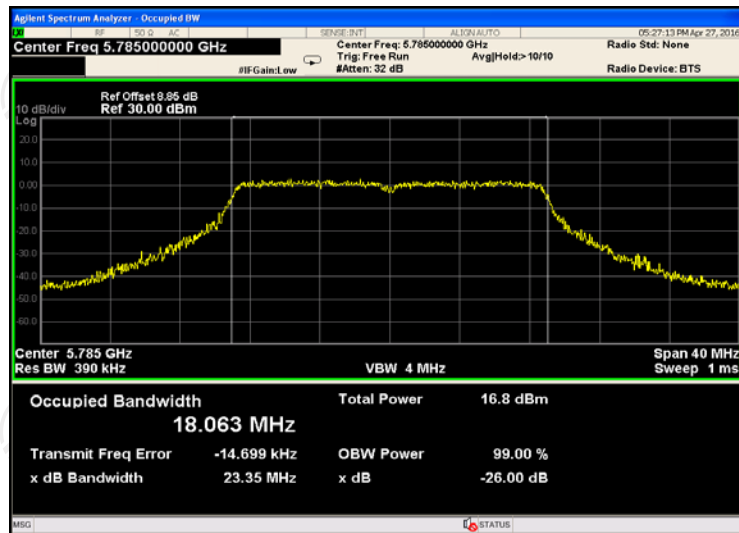


11ac(HT20)

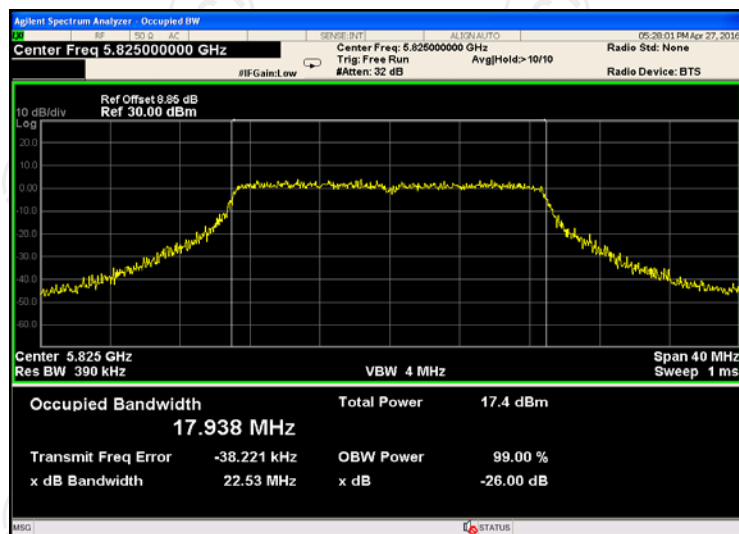
CH149



CH157

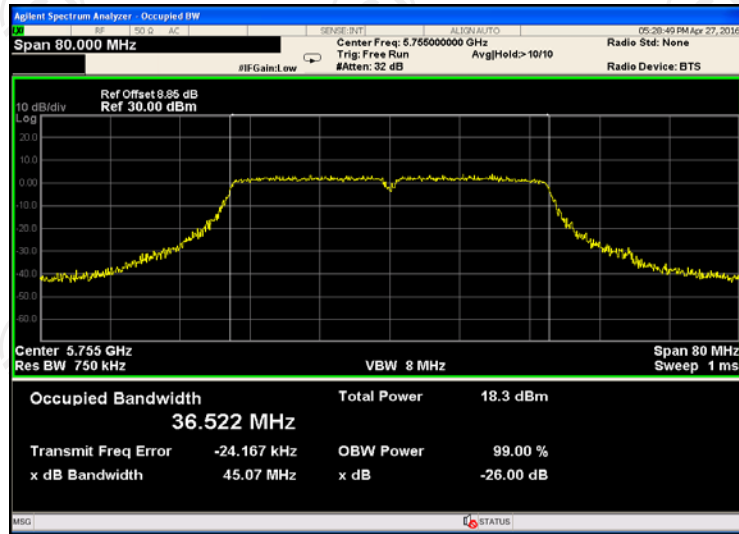


CH161

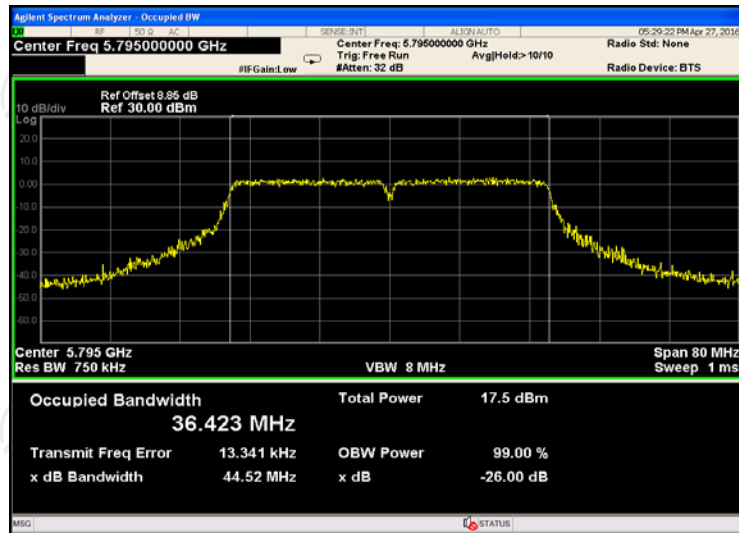


11ac(HT40)

CH151

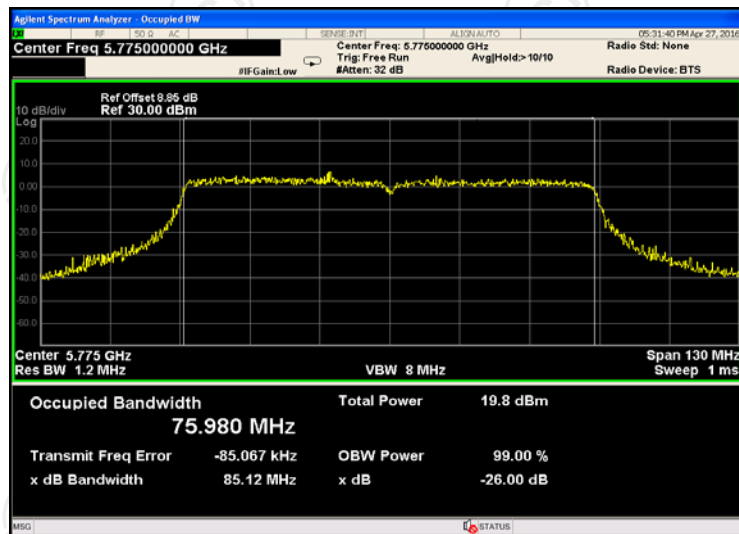


CH159



11ac(HT80)

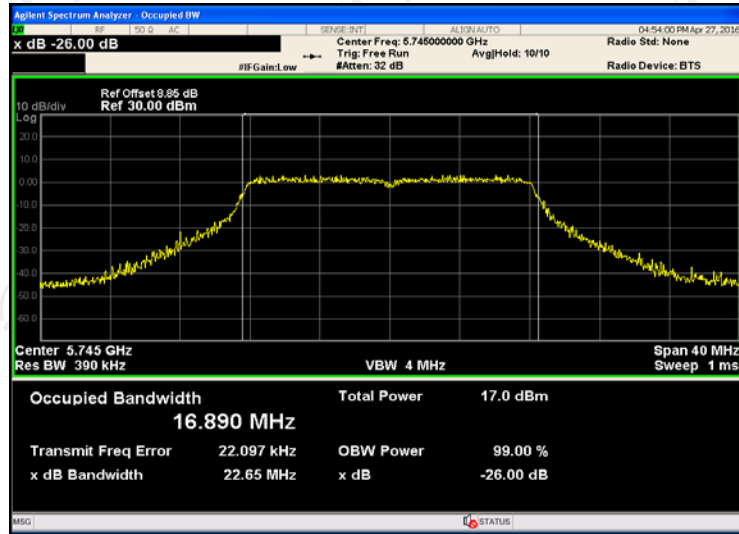
CH155



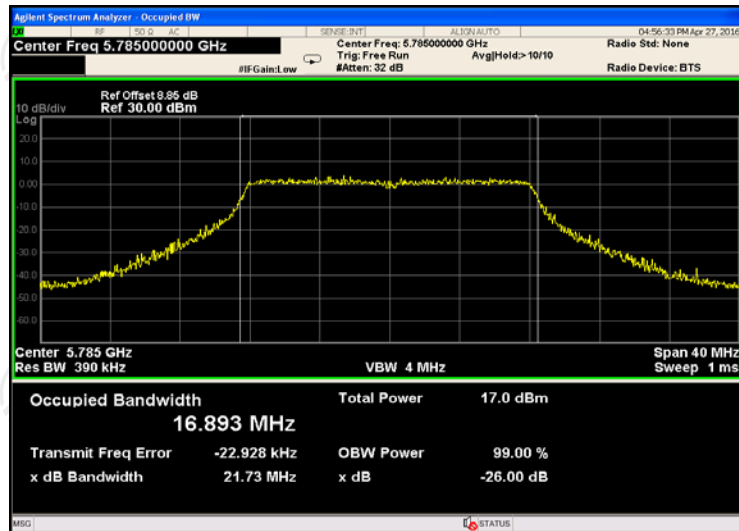
Output 1
Band IV (5725 – 5850 MHz)

11a

CH149



CH157



CH161

